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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/812,723	03/20/2001	James A. Laugham JR.	BMA-008	2606

21323 7590 06/05/2003

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EXAMINER
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SOOHOO, TONY GLEN

ART UNIT	PAPER NUMBER
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1723

DATE MAILED: 06/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/812,723

Applicant(s)

LAUGHARN ET AL.

Examiner

Tony G Soohoo

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-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 March 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) See Continuation Sheet is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 38-40, 43, 45, 47, 51, 54, 63, 68, 77, 113-115, 118, 120, 122, 126, 129, 137, 142 and 151-153 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on 19 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6, 7.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**Continuation of Disposition of Claims: Claims pending in the application are 38-40,43,45,47,51,54,63,68,77,113-115,118,120,122,126,129,137,142 and 151-153.**

***Election/Restrictions***

1. Applicant's election of the invention and species of as recited in Paper No. 12 is acknowledged. Although applicant states the election of the invention and species is/are made with traverse, because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
2. Elected claims are 38-40, 43, 45, 47, 51, 54, 63, 68, 77, 113-115, 118, 120, 122, 126, 129, 137, 142, and 151-153.

***Priority***

3. A typographic error has occurred in the request for priority under 119(e), another request is required to correct the application number of the request to 60/263,838, see papers filed 7/19/2001.
4. This application discloses and claims only subject matter disclosed in prior Application No. 60/263,838, filed 11/08/2000, and names an inventor or inventors named in the prior application. Accordingly, this application may constitute a continuation or division. Should applicant desire to obtain the benefit of the filing date of the prior application, attention is directed to 35 U.S.C. 120 and 37 CFR 1.78.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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6. The term "defect" in claim(s) 47 and 122 is a relative term which renders the claim indefinite. The term "defect" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Since a "defect" is traditionally understood as a production of an unwanted characteristic, it is unclear how the claims may define the desirability and determination of the scope of a patent protection of a "defect" to be deliberately produced by the manufacture process.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 38, 39, 40, 43, 47, 63, 68, 113, 114, 115, 118, 122, 137, 142, are rejected under 35 U.S.C. 102(b) as being anticipated by Jacke et al 2950725.

The scope of the claims are so broad that the device of the Jacke reference anticipates the claim limitations. With regards to the apparatus and method, the Jacke reference and its operation discloses an ultrasonic acoustic source 14, 32-36 for nucleation cavitation of a fluid; a controller to control the acoustic source, see figure 7

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(claims 38, 39); and the further adaptation whereby the acoustic field is selectively directed to a nucleation feature (claim 47, 118) via a focused arrangement due to the concave curvature of 14 (claim 142) and the provision of a movable means 17 for relative positioning (claim 40, 68, ) of a wire basket active site having inherently a 1st surface and "a nucleation feature" on the surface (claim 43) in particular in the form gaps, crevices and have defects in the wires forming the basket (claim 47, 118) in which formed bubbles may attach upon the gaps, cracks, crevices between the wires and the bubbles may release or implode thereby inherently displacing fluid and causing agitation and mixing of the fluid (claim 63, 137).

The inherent, formation of nucleation cavitation produced bubbles caused by ultrasound and the interaction of such nucleated bubbles upon surfaces having scratches, cracks, and very small imperfections is deemed old and well known in the art. This interaction is as deemed as an inherent physical fact in the acoustic art, as evidenced by prior art references Bran 5,037,481, column 1, lines 28-31. and Alliger Re. 31,779, column 5, lines 55-57, and column 6, lines 14-18.

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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10. Claims 38-40, 43, 45, 47, 51, 54, 63, 68, 77, 113-115, 118, 120, 122, 126, 129, 137, 142, and 151-153 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Wohlstadter et al 6413783.

The Wohlstadter reference teaches the provision and method of providing a small chamber 11 holding a fluid 12 whereby there is a notch, in the cavity 17 located above 15 whereby a sonicating device 16, 26 (acoustic source) is controlled (column 10, line 25-26), directed, and focused into the chamber 17, the sonication is of the frequency range which may produce mixing, see column 5, lines 51-66 and desires the promotion of mixing (column 10, lines 30-35. It is also noted that the may be used in the medical field, column 1, line 65-67.

The Wohlstadter discloses all of the recited subject matter as defined within the scope of the claims with the exception of the acoustic field being directed to a "nucleation feature" of a pit, crevice, defect, scratch, groove or ridge in the surface of the chamber 17. Although Wohlstadter shows a notch section, it is may be argued that the feature of the notch may not satisfy a "nucleation feature". Accordingly, it is noted that the surface of 17 is a manufactured product and the surfaces are subject to manufacture errors and tolerances, whereby almost all manufactured materials, at least in the microscopic level, have small scratches, pits, grooves, or ridges, whereas if a device is manufactured and operated such that the surface is so polished to a degree that there are no small scratches, pits, grooves, or ridges, the cost would be prohibitive in manufacturing the product in a cost-effective manner.

Accordingly, it is deemed that it would have been obvious to one of ordinary skill in the art to manufacture the inside surfaces of 17 so that the tolerance of the smoothness of the surface would have small scratches, pits, grooves, or ridges, thereby the manufacturing cost would be not prohibitive and the product in a cost-effective manner. With regards to the method claim, the use of such a product would satisfy the recited claimed limitations whereby the small scratches, pits, grooves, or ridges, would be affected by the sonication device thereby inherently producing a mixing effect. With regards to the feature of the use of a microchamber, and the volume size of 0.1 pl and 10ml, of the chamber, the Wohlstadter discloses all of the recited subject matter as defined within the scope of the claims with the exception of the use of a "cell", whereby a microchamber and the volume as recited in the claims are merely directed to the size of the volume of the chamber, and whereby the Wohlstadter reference is used in the medical field whereby small samples are commonly used, it would have been an obvious matter of design choice to optimize the size of the chamber and the volume of the chamber to handle micro size volumes of fluid for the sake of using less sample fluid for each processing by the method and device, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1955).

With regards to the use of a biological fluid, it is noted that Wohlstadter et al teaches the use of the device in the medical field, column 1, lines 20-65, thus it is deemed that it would have been obvious to one of ordinary skill in the art to use a



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biological fluid in the device and process of operation of the device by Wohlstadter so that it provides a useful manner to mix fluids in the medical field.

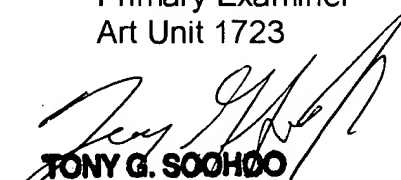
**Conclusion**

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Bran 5037481 and Alliger Re.31779 is cited as background support of known physical effects of sonication upon bubble formation and nucleation features. The following disclose sonication devices: Miles et al 6100084, Brown et al 3876890, Jones 2855526, Bjornson et al 6284113, Evensen et al 5890802, Vota 4488816, Yasuda et al 6244738, Anderson et al 3396286, Williams 2565159, O'Neill 3066686, Nesh 3194640, Camp 2864592, Honda 4834124, Haller et al 6010316, Dion et al 6361747.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony G Soohoo whose telephone number is (703) 308-2882. The examiner can normally be reached on 7:00 AM - 5:00 PM, Tues. - Fri.. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Tony G Soohoo  
Primary Examiner  
Art Unit 1723

tgs



**TONY G. SOOHO**  
**PRIMARY EXAMINER**